

New Challenges of mitochondria research in ART

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Mitochondria play an important role in producing the energy required for all cellular functions. Mitochondrial disorders, which originate from pathogenic mitochondrial DNA mutation, often cause severe, and even lethal, human diseases. There is interest in assessing the relationship between mitochondrial function and human fecundity, although at present no definitive conclusions can be drawn due to contradictory results. The biological effects of gonadotropin-releasing hormone agonist treatment on mitochondrial gene expression in implantation markers, apoptosis, and autophagy-related proteins in patients with endometriosis have been investigated. Recent studies have also shown that low oxygen tension may improve embryo viability by increasing mitochondria membrane potential, expression of antioxidant enzymes, and glucose transporter activities.